WHAT IS CLAIMED IS:

1. An encoding rate controller for controlling the encoding rate of an encoder comprising:

a memory for storing the encoding rates of the encoder at a plurality of different times; and

a control circuit for calculating an average encoding rate based on the stored encoding rates and controlling the encoding rate of the encoder based on the calculated average.

2. An encoding rate controller according to Claim 1, wherein the control circuit controls the encoding rate by changing the quantization scale of a data quantizing device whose output is coupled to the encoder.

3. An encoding rate controller according to Claim 1, wherein the control circuit controls the encoding rate to adjust the calculated average encoding toward a target value.

4. An encoding rate controller according to Claim 1, wherein the control circuit determines whether a current encoding rate exceeds a maximum encoding rate and further controls the encoding rate based on the determination.

5. An encoding rate controller according to Claim 1, wherein the control circuit determines whether decoding buffer overflow or underflow will

result at the current encoding rate and further controls the encoding rate based on the determination.

6.   An encoding rate controller according to Claim 1, wherein the control circuit determines whether the calculated average rate is greater than an upper value or less than a lower value and controls the encoding rate based on the determination.

7.   An encoding rate controller according to Claim 1, wherein the control circuit determines into which of two or more ranges the calculated average rate falls and controls the encoding rate based on the determination.

8.   An encoding rate controller according to Claim 7, wherein the at least two ranges are determined by curves that converge at a desired average encoding rate.

9.   An encoding rate controller according to Claim 1, wherein the control circuit determines a rate of change of the encoding rate and further controls the encoding rate based on the determination.

10.   A data encoding apparatus comprising:

a data quantizing device;

an encoder for encoding data quantized by the data quantizing device; and

an encoding rate controller for controlling the quantization scale of the data quantizing device, wherein the encoding rate controller comprises:

a memory for storing the encoding rates of the encoder at a plurality of different times; and

a control circuit for calculating an average encoding rate based on the stored encoding rates and controlling the quantization scale based on the calculated average.

11. A data encoding apparatus according to Claim 10, for encoding video data.

12. An encoding rate controller for controlling the encoding rate of an encoder, the encoding rate controller comprising a control circuit configured to perform a first encoding rate control process for a first portion of a signal supplied to the encoder and a second, different encoding rate control process for a second, different portion of the signal.

13. An encoding rate controller according to Claim 12, wherein the first signal portion temporally precedes the second signal portion.

14. An encoding rate controller according to Claim 12, wherein the first signal portion is a predetermined number of groups of pictures.

15. An encoding rate controller according to Claim 12, wherein the first encoding rate control process calculates an average encoding rate based on

encoding rates at a plurality of times, determines whether the calculated average encoding rate is greater than an upper value or less than a lower value and controls the encoding rate based on the determination, and the second encoding rate control process calculates an average encoding rate based on encoding rates at a plurality of times, determines into which of two or more rate ranges the calculated average rate falls and controls the encoding rate based on the determination.

16.   An encoding rate controller according to Claim 15, wherein the second encoding rate control process determines a rate of change of the encoding rate and further controls the encoding rate based on the determination.

17.   A data encoding apparatus comprising:

a data quantizing device;

an encoder for encoding data quantized by the data quantizing device; and

an encoding rate controller for controlling the quantization scale of the data quantizing device, wherein the encoding rate controller comprises a control circuit configured to perform a first encoding rate control process for a first portion of a signal supplied to the encoder and a second, different encoding rate control process for a second, different portion of the signal.

18.   A data encoding apparatus according to Claim 17, wherein the first encoding rate control process calculates an average encoding rate based on

encoding rates at a plurality of times, determines whether the calculated average encoding rate is greater than an upper value or less than a lower value and controls the encoding rate based on the determination, and the second encoding rate control process calculates an average encoding rate based on encoding rates at a plurality of times, determines into which of two or more rate ranges the calculated average rate falls and controls the encoding rate based on the determination.

19.   A data encoding apparatus according to Claim 17, for encoding video data.

20.   A method for controlling the encoding rate of an encoder comprising:

storing the encoding rates of the encoder at a plurality of different times;

calculating an average encoding rate based on the stored encoding rates; and

controlling the encoding rate of the encoder based on the calculated average.

21.   A method according to Claim 20, wherein the encoding rate is controlled by changing the quantization scale of a data quantizing device whose output is coupled to the encoder.

22.   A method according to Claim 20, wherein the encoding rate is controlled to adjust the calculated average encoding toward a target value.

23. A method according to Claim 20, further comprising:

determining whether a current encoding rate exceeds a maximum encoding rate; and

further controlling the encoding rate based on the determination.

24. A method according to Claim 20, further comprising:

determining whether decoding buffer overflow or underflow will result at the current encoding rate; and

further controlling the encoding rate based on the determination.

25. A method according to Claim 20, further comprising:

determining whether the calculated average rate is greater than an upper value or less than a lower value; and

controlling the encoding rate based on the determination.

26. A method according to Claim 20, further comprising:

determining into which of two or more ranges the calculated average rate falls; and

controlling the encoding rate based on the determination.

27. A method according to Claim 26, wherein the at least two ranges are determined by curves that converge at a desired average encoding rate.

28. A method according to Claim 20, further comprising:

determining a rate of change of the encoding rate; and

further controlling the encoding rate based on the determination.

29. A method for controlling the encoding rate of an encoder, comprising:

performing a first encoding rate control process for a first portion of a signal supplied to the encoder; and

performing a second, different encoding rate control process for a second, different portion of the signal.

30. A method according to Claim 29, wherein the first signal portion temporally precedes the second signal portion.

31. A method according to Claim 29, wherein the first signal portion is a predetermined number of groups of pictures.

32. A method according to Claim 29, wherein

the first encoding rate control process calculates an average encoding rate based on encoding rates at a plurality of times, determines whether the calculated average encoding rate is greater than an upper value or less than a lower value and controls the encoding rate based on the determination, and

the second encoding rate control process calculates an average encoding rate based on encoding rates at a plurality of times, determines into which of two or more rate ranges the calculated average rate falls and controls the encoding rate based on the determination.

33.   A method according to Claim 32, wherein the second encoding rate control process determines a rate of change of the encoding rate and further controls the encoding rate based on the determination.